PLACED SHARES THE ROLE OF THE DISCOUNT IN UK RIGHTS ISSUES AND OPEN OFFERS

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Abstract

The typical seasoned offer in the UK by smaller listed companies is no longer a conventional rights issue but an issue involving placed shares. Discounts provide substantial rewards to buyers of placed shares, and are related to proxies for costs of investing in the issuer. The difficulty of rewarding buyers of rights in the market is seen as a major disadvantage of the rights issue method. The study finds a negative relation between the discount and market reaction to an issue, which possibly reflects adjustment of the offer price for anticipated change in the share price.

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1. Introduction

In a conventional rights issue, existing shareholders are offered all the new shares and the rights to them can be sold during the offer period. The only reason for a discount is to reduce the risk of the market price falling below the offer price before the offer closes; depth of discount makes no difference to the wealth of subscribing or non-subscribing shareholders, nor is it a cost to the company. Most seasoned offers by smaller listed companies in the UK no longer fit this description, because a large proportion of the shares is privately placed with investors. Placed shares are not taken up by existing shareholders, and the route of selling rights in the market is bypassed. Any discount of placed shares is a cost either to non-subscribing shareholders or to the company, so the depth of discount is critical. This paper documents the extent of placing in seasoned offers, examines determinants of the discount, and suggests why placing has become common.

The growth of placing is reflected in the rapid increase in the number of open offers, which were almost unheard-of before 1987 but had become as common as rights issues by 1996. In an open offer, existing shareholders retain their 'pre-emption' right of first refusal, and can subscribe for the shares they are entitled to during the offer period, as in a rights issue. The difference is that the rights can not be sold in the market. All the new shares are placed with investing institutions, usually just before the offer is publicly announced, subject to 'clawback' to satisfy demand from existing shareholders. Shares not taken up by the offer close are bought by the institutions with which they were placed. Any discount makes non-subscribing shareholders worse off, since it causes a fall in the price of the existing shares when they go ex-rights, and the rights are worthless unless the holders subscribe. Despite this, most open offers are made at an appreciable discount and on average half of the shares are not taken up by the shareholders entitled to them. By the mid-1990s, 80% of seasoned offers in the UK were either open offers, rights issues in which some of the shares were privately placed, or pure private placings not offered pro rata to extsing shareholders. The discount in open offers and rights issues with placed shares is worth an average of 8.3% of the offer price (median 6.1%), and in addition the buyers receive a cash placing fee averaging 1.1% (1.3%).

There is no previous research on open offers, but the discount has been studied in conventional rights issues and in pure private placings. Studies of rights issues in several countries have tested the idea that the discount acts as a signal about the quality of the issuer

(Marsh, 1977; Loderer & Zimmerman, 1988; Tsangarakis, 1996; Bøhren et al, 1997; Bigelli, 1999). They find little or no relation between the discount and the market reaction to the issue on announcement, and conclude that the discount is not a signal. Singh (1997) reports that the discount is related to the (nonsystematic) risk of the issuer's shares, as expected if its purpose is to reduce the risk of offer failure. Substantial discounts are found in most private placings (Wruck, 1989; Hertzel & Smith, 1993; Goh et al, 1999) as well as most rights issues, but the reason for a discount in a placing can not be to reduce the risk of offer failure, since there is no offer period. A discount may reflect limited market liquidity; Holthausen et al (1987) find that large blocks of existing shares are sold at a discount. Another possibility is that discounts repay costs of investing in the issuer. Wruck (1989) argues that discounts in placings of new shares compensate investors with large stakes for future monitoring costs, whereas Hertzel & Smith (1993) argue that they compensate for costs of investigating the issuer.

Our analysis of the determinants of discounts augments the above evidence. We find that discounts are related to proxies for costs of investing in the issuer, as well as to the nonsystematic risk of the issuer's shares. Controlling for these factors, discounts are significantly less deep in open offers, which is consistent with the view that their primary purpose in open offers is to reward new investors (they are a cost to be minimised). The evidence on the relation between discounts and liquidity is ambiguous. An unexpected finding is a clear negative relation between discounts and abnormal returns on announcement and during the offer period, which is not consistent with previous research. In our sample, issues at a discount to the market price of 30% or deeper, measured *before* the announcement, have a cumulative average abnormal return of -19% on announcement and during the offer. Perusal of prospectuses of deep discount issues reveals that 80% of the issuers are in difficulty. For the minority of deep discount issues by healthy companies, the average abnormal return on announcement is close to zero, which suggests that a deep discount itself is not treated as a negative signal. Our interpretation is that some companies in difficulty anticipate a fall in their share price on announcement of the issue and of associated bad news, and they adjust the offer price downwards to allow for the expected price fall.

The substantial rewards provided to buyers of placed shares and the evidence that the discount is related to costs of investment point to a problem with rights issues, which is that the rights issue method is not designed to reward buyers of rights. This is a serious

disadvantage if a reward is often required, as the evidence from placed shares indicates. It implies that the comparative advantage of open offers is related to the proportion of the issue not subscribed for by existing shareholders and to the reward required by new investors. Comparisons between rights issues and open offers show that the open offer method is indeed used for issues with a relatively low contribution from existing shareholders and with relatively high proxies for costs of investing in the issuer.

The need to reward new investors and the fact that this can be done through an open offer or placing could help explain the disappearance of rights issues in the USA, which is puzzling because the direct costs of firm commitment offers are higher (Smith, 1977; Eckbo & Masulis, 1992). The advantages of placing or bookbuilding have so far been viewed as fairly modest. Hansen (1988) points out that there are transactions costs for sellers and buyers of rights,[1] which he argues are reflected in a temporary fall in the issuer's share price during a rights issue, which is reversed afterwards. However, Eckbo & Masulis (1992) and Singh (1997) find little evidence of price reversal and doubt the importance of transactions costs. Whilst the present paper finds some evidence of price reversal, it is not conclusive and our case does not rest on it. We argue that the extent of placing and the size of rewards to buyers of placed shares clearly indicate the scale of the problem caused by inability to reward buyers of rights reliably. It seems likely, in the light of the UK evidence, that investors in firm commitment offers in the USA often receive similar substantial rewards, though the amounts are unknown. The obscurity of the rewards to investors in firm commitments may have led observers to overlook the problem in rights issues of rewarding buyers of rights.

The next section gives background information on rights issues, open offers and private placings. Section 3 describes the sample, Section 4 presents evidence on placed shares

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1. Transactions costs include the bid-ask spread and brokers' commissions on the rights, possible capital gains tax on selling rights, and possible costs to the buyer, eg of investigating the issuer. Placing avoids the costs of trading rights and could reduce the buyer's costs. Other explanations for the adoption of firm commitments in the USA are that investment banks induced company managers to choose them (Smith, 1977); that the bid-ask spread of the issuer's shares widens after rights issues and narrows after firm commitments (Kothare, 1997); and that underwriters in rights issues do not support the share price because they short-sell the issuer's shares when they buy rights, which creates a hedged short sale position (Singh, 1997). There is no mention of short-selling of shares by buyers of rights in the extensive evidence collected by the MMC (1999), or in any other UK source we know of. The adverse selection theory of Eckbo & Masulis (1992) concerns the choice between underwritten and non-underwritten issues. The choice between underwritten rights issues and firm commitments is determined in their model by transactions costs, though they do not stress this.

and the rewards received by investors, and Section 5 examines determinants of the discount. Section 6 explains the difficulty in rewarding buyers of rights, compares open offers with rights issues and comments on the disappearance of rights issues in the USA. Section 7 concludes.

2. Background on rights issues, open offers and private placings

In a rights issue, new shares are offered to existing shareholders in proportion to the number of shares they own. For example, a one for two issue means that shareholders are entitled to buy, and are provisionally allotted, one new share for every two shares they own. The prospectus is posted the day the offer is announced and if no extraordinary general meeting (EGM) is needed to authorise the issue, the offer period of at least three weeks begins on the announcement day. If an EGM is necessary, there is a gap of two or three weeks between the announcement and the EGM, and the offer period starts the day after the EGM. The rights can be traded in the same way as shares during the offer period. The offer price is decided the evening before the issue is announced, whether or not there is an EGM, and is usually set at a discount to the market price.

Descriptions of conventional rights issues (for example, Arnold, 1998, pp. 405-8; Brealey & Myers, 2000, pp. 425-7) emphasise that the depth of discount does not matter to non-subscribing shareholders because they can sell their rights. The existing shares go ex-rights the day after the announcement or after the EGM, if there is one. Buyers of the shares on or after the ex-date are not entitled to participate in the issue so that, other things equal, the market price falls on the ex-date to reflect the scrip element of the issue. The notional price of a right is the difference between the ex-rights share price and the offer price (ignoring the right's time value), and the actual price is kept close to this by the possibility of arbitrage between the shares and the rights.[2] Non-subscribing shareholders are compensated for the fall in their shares on the ex-date by the value they receive for their rights. The only reason for a discount is to reduce the risk of the issuer's share price falling below the offer price. If this happens, the rights become worthless, the sub-underwriters (if any) will be required to take up

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2. A study of the market for rights during 1995-97 by Credit Suisse First Boston, reproduced in MMC (1999, pp. 244-6), finds that rights trade at an average discount to their notional price of 0.5% of the ex-rights share price, using mid-point prices. The sample is restricted to large issues of £50m or more. The study notes that traders do arbitrage between the shares and the rights.

unsold shares, and the company and its advisers will suffer the embarrassment of a 'failed' issue. The sub-underwriters are investing institutions to which the investment bank acting as lead underwriter has transferred the underwriting risk on or before the announcement day. The depth of discount should be related to the risk of offer failure, especially since the sub-underwriting commission was a fixed 1.25% of the offer price in virtually all UK rights issues up to the end of 1996.

A variant on the rights issue method known as the open offer started to be used in the late 1980s, and rapidly became popular. In an open offer, the new shares are placed with investors on or shortly before the announcement day, but the shares are also offered pro rata to existing shareholders, who have priority. The offer period is at least three weeks. The rights can not be sold, which means that any discount implies a transfer of wealth from non-subscribing shareholders. The share price falls on the ex-day, as in a rights issue, and non-subscribers are not compensated for the fall in value of their existing shares.[3] The investors with whom the shares have been placed receive all the shares not subscribed for by the existing shareholders, whereas in a rights issue the sub-underwriters will only receive shares if the offer fails. Open offer terminology reflects the fact that the primary function of placing is to sell the shares rather than to transfer underwriting risk; the investors are referred to as 'placees' and the new shares are said to be 'placed with clawback'; an institution acting as a placee agrees to buy a certain number of shares, some of which will be 'clawed back' to satisfy demand from existing shareholders wishing to subscribe.

Private placings are a third type of seasoned share issue in common use. A private placing or subscription or placing without clawback is an issue in which the new shares are placed with one or more investors and are not offered pro rata to existing shareholders. A special resolution has to have been passed which disapplies shareholders' pre-emption rights for 12 months; there is no restriction on re-sale of the shares; and any discount is a cost to the issuer. A special type of placing is the issue of shares to the shareholders of a company being acquired, in exchange for the acquired company's shares. The acquired company's

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3. The ex-rights day in an open offer is usually the day after the announcement, otherwise it is the announcement day. If an EGM is necessary to authorise issue of the shares, it is held after the offer period, unlike in a rights issue. Although there is no market for the rights, buyers of the shares before the ex-day are entitled to participate in the open offer, and this entitlement has value if the offer is at a discount.

shareholders are referred to as vendors and the shares issued to them are known as vendor consideration shares. In this paper, the term 'private placing' encompasses both types of placing except where a distinction is made between them. Many rights issues and open offers are accompanied by a private placing, which is not part of the rights issue or open offer because the shares are not offered pro rata to existing shareholders. But the shares are issued through the same prospectus and, almost always, on the same terms as the shares in the rights issue or open offer.

3. Data and preliminary evidence

The sample consists of 928 rights issues and 450 open offers made between 1 January 1985 and 30 September 1996. Issues by foreign companies and by investment trusts (closed end investment funds) are excluded. Information on issues is from prospectuses. Scanned copies from 1 July 1991 onwards are available from Primark Extel, which aims to include all issues by listed companies. Extel keeps some prospectuses on microfiche for issues before 1 July 1991, though its collection is incomplete. All appropriate issues from 1 January 1985 to 30 September 1996 are included for which Extel has a prospectus.

Table 1 provides annual data on the number and size of rights issues and open offers, the discount to the market price (*dis-to-mkt*) and to the theoretical ex-rights price (*dis-to-TERP*). A deeper discount means a more positive value. The size of an offer is the proceeds gross of direct costs, including any private placing. The market price is the mid-point between the highest bid and the lowest offer from market makers at the close of the day before the announcement. The TERP is the market price times the proportion of existing shares in the total after issue plus the offer price times the proportion of new shares in the total. In both measures, the net dividend per share to which the new shares are not entitled, if any, is subtracted from the market price of the existing shares. *Dis-to-mkt* is known for certain when the offer price is set, the evening before the announcement, but *dis-to-TERP* is arguably a more accurate measure because the TERP is the expected market price of the existing shares ex-rights and of the new shares, assuming the market price does not change except on the ex-day to reflect the scrip element of the issue. If shares are not offered to existing shareholders, the existing shares have no rights, there is no scrip element and the TERP concept does not apply, even if the issue is at a discount. For this reason, the number of new shares used in

calculating the TERP is the number of shares in the rights issue or open offer only. If the issue is at a premium, the TERP equals the market price.

In 24 issues the discount could not be calculated because we could not find a market price for the relevant day, or because no offer price is given. In 70 issues Extel records a market price though trading in the share had been suspended by the Stock Exchange, in which case the price recorded is the price at which the share was suspended. We leave issues with suspended shares in the sample but exclude them from the event study. 1,214 issues are at a discount, 20 are at the market price, 66 are at a premium and 54 are accompanied by a share consolidation. In analyses involving discounts, 49 issues made at a premium of 5% or more to the market price are excluded, because the premium is likely to be payment for acquiring a controlling interest (Barclay & Holderness, 1989; Wruck, 1989), and changes in control are beyond the scope of this paper. Issues accompanied by a share consolidation are also excluded.[4] The 17 issues at a premium of less than 5% are retained because the offer price could have been set in anticipation of a rise in the share price on announcement of the issue.

Several points emerge from Table 1. The growth in open offers is apparent; the first in our sample was in 1987 and by 1996 they accounted for over half of issues by number. Rights issues are larger; the average rights issue raises £56.0m (median £17.3m) in September 1996 pounds, compared with £17.3m (£7.6m) for open offers. There is a big difference in the discount between the two types of offer. The average discount to the market price in rights issues is 21.0% (17.6%) compared with 13.0% (7.8%) in open offers.[5] There is no obvious trend in rights issue or open offer discounts during 1985-96, except perhaps that rights issue discounts are somewhat less deep in 1995 and 1996.

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4. They appear to have premiums of several hundred per cent, but this is illusory because one new share will replace a number of existing shares on implementation of the consolidation after the EGM. A discount can be calculated against the market price or TERP adjusted for the consolidation, but in view of additional complexities (eg two adjustments to the price record), it was decided to exclude these issues from analyses involving discounts.

5. Stock Exchange Listing Rule 4.8 states that discounts in open offers must not be deeper than 10% of the market price 'unless the Exchange is satisfied that the issuer is in severe financial difficulties or that there are other exceptional circumstances' (London Stock Exchange, 1997). In addition, the Investment Committees of the Association of British Insurers and the National Association of Pension Funds recommend that the discount to the market price in private placings for cash (ie excluding vendor consideration issues) be no deeper than 5%, including underwriting or placing fees (MMC, 1999, p. 239). These limits do not appear to be binding in practice. 30% of open offers in our sample are at a discount deeper than 10% and 72% of the

private placings for cash accompanying rights issues or open offers are at a discount deeper than 5% (88% if underwriting and placing fees are added).

Table 1. **Rights issues and open offers, 1985-96**

Proceeds are gross of direct costs and are converted into September 1996 pounds. They include issues of shares privately placed which accompany the rights issue or open offer. *Dis-to-mkt* = ((mkt price - offer price)/mkt price) x 100%. The market price is the mid-price at the close of the day preceding the announcement, less any net dividend per share to which the new shares are not entitled. *Dis-to-TERP* = ((TERP - offer price)/TERP) x 100%. The theoretical ex-rights price (TERP) = (mkt price)(E/(N+E)) + (offer price) (N/(N+E)), where E = number of existing shares in issue and N = number of new shares in the rights issue or open offer (offered pro rata to existing shareholders). E is not known in three issues, for which *dis-to-mkt* can be calculated but not *dis-to-TERP*. 103 issues at a premium of 5% or more, or accompanied by a share consolidation, are excluded from the sample in calculating discounts. After 1 July 1991, the sample is close to the full population of rights issues and open offers; before then, the proportion in the sample diminishes as the date becomes earlier. Source of prospectuses and other data in all tables: Primark Extel, unless otherwise noted.

	RIGHTS ISSUES				OPEN OFFERS			
	Number	**Mean proceeds (£m)**	**Mean *dis-to-mkt* (%)**	**Mean *dis-to-TERP* (%)**	**Number**	**Mean proceeds (£m)**	**Mean *dis-to-mkt* (%)**	**Mean *dis-to-TERP* (%)**
1985-88	126	£108.3	21.1	16.3	14	£13.9	10.8	9.0
1989	64	£39.7	19.6	14.9	6	£24.2	8.2	7.1
1990	53	£34.8	23.2	16.3	12	£13.2	10.7	8.4
1991	128	£70.3	22.0	15.5	50	£18.8	12.0	8.3
1992	85	£34.6	21.6	14.5	51	£14.0	16.5	10.3
1993	187	£54.6	22.4	15.9	88	£13.1	14.1	8.9
1994	141	£34.4	21.0	14.9	91	£13.3	11.9	8.1
1995	83	£34.6	18.6	13.5	68	£28.0	15.3	9.8
1996 (3/4)	61	£67.3	15.4	11.9	70	£19.5	10.6	7.6
All issues	928	£56.0	21.0	15.1	450	£17.3	13.0	8.7
Median		£17.3	17.6	13.6		£7.6	7.8	5.8
Standard deviation		*£124.4*	*13.7*	*10.0*		*£32.6*	*16.5*	*11.2*

The paper deploys results of an event study using the method in Eckbo & Masulis (1992) (see Table 5). An advantage of this method is that it enables a significance test to be calculated for the cumulative average abnormal return (CAAR) for the offer period, despite the fact that this period varies in length. The number of issues with event study results is 1,010. The reasons for exclusion from the event study are: the requisite share price data are not in the Extel database (237 issues); suspension of trading by the Stock Exchange was in force when the issue was announced (70); and no adjustment has been made to the price record for the scrip element on the ex-day (61).[6] There are suitable data for six of the 11 offers which were announced but not completed, and abnormal returns for these six are included for the announcement period only.

4. Placed shares and the discount as a reward

A discount rewards buyers of placed shares, which include shares in private placings, shares not subscribed for by those entitled to them in open offers, and pre-renounced shares in rights issues. The latter category requires explanation. In both rights issues and open offers, shareholders may choose to renounce their entitlements *before* the public announcement, in which case the shares are placed. This makes little difference in an open offer; pre-renounced shares are said to be 'placed firm', the remainder are 'placed with clawback', and the shares pre-renounced are simply part of the total not subscribed for by those entitled to them. But in a rights issue, the decision to renounce the rights in advance means that they are not sold in the market and that the discount provides a reward to the buyers. This is because the London Stock Exchange (1997, 4.17(c)) has a rule that shareholders who pre-renounce their rights receive only 50% of the difference between the TERP and the offer price. 50% is, in practice, the maximum received; pre-renouncing shareholders sometimes elect to waive all of the compensation for their rights, presumably to help place them. The Stock Exchange normally requires the proportion pre-renounced to be at least 25%, implying that permission is given because it may be difficult to sell a large proportion of the rights in the market.

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6. If the offer price is below the market price at the close of the day before the ex-date, share prices before the ex-date should be multiplied by an adjustment factor reflecting the scrip element. Failure to do this results in downward bias of abnormal returns during the offer period (unreported results for the sample of all issues with share data indicate that this bias reduces the offer period CAAR by 0.75%).

Table 2. Placed shares in rights issues and open offers

Proportion of issues	All issues (%)	Rights issues (%)	Open offers (%)	Test stats for difference
With some pre-renounced shares	34.0	27.6	47.3	*4.65*[1]
Accompanied by a private placing for cash	12.4	6.7	24.2	*6.86*
Accompanied by a placing with shareholders of a company being acquired	22.3	16.4	34.4	*5.27*
Issues with at least one of the above	53.1	42.2	75.3	*6.26*
N (with or without placed shares)	1,378	928	450	
In issues with placed shares, mean proportion of total issue consisting of:				
Pre-renounced shares	30.1	30.9	29.1	*-0.88,*[1] *0.33*[2]
Shares privately placed for cash	44.7	48.9	42.3	*-1.83, 0.07*
Shares placed with shareholders of a company being acquired	27.9	28.4	27.5	*-0.36, 0.75*
All placed shares				
Mean	41.5	38.9	44.4	*3.00, 0.00*
Median	41.3	37.4	46.6	
In all open offers, mean proportion of placed shares including all shares not subscribed for by those entitled to them[3]			61.5	
Total value of placed shares/ total value of all shares issued[4]	14.4	8.0	53.5	

1. *t*-statistic for open offer proportion or mean less rights issue proportion or mean. 2. *p*-value of Wilcoxon's rank sum test for differences between samples (not applicable in comparing proportions). 3. Not applicable in rights issues; rights to shares not pre-renounced and not subscribed for are sold on the market. N = 394; number of shares bought by existing shareholders is unknown in 56 open offers. 4. Includes all issues. In the 56 open offers with unknown take-up, the amount placed is estimated by the amounts pre-renounced and privately placed.

Table 2 provides evidence on the extent of direct placing. 42% of rights issues and 75% of open offers either have some pre-renounced shares, or are accompanied by a private placing, or both, and the average proportion of the total issue placed in these samples is 39% in rights issues and 44% in open offers. All open offers have a residue of shares not subscribed for by the end of the offer, in addition to any pre-renounced shares. Shares not taken up will already have been placed with clawback and are therefore allocated to the placees at the offer close. Including these shares, the average proportion placed in open offers is 62%.[7] Counting all open offers as issues with some placing, 61% of issues have some placed shares (74% during 1994-96). The findings are similar if the sample is restricted to issues at a discount (not shown in Table 2). 59% of issues at a discount have some placed shares and the average proportion placed is 38% in rights issues and 58% in open offers. Shareholders choose to pre-renounce their rights in 28% of rights issues at a discount, despite the loss of half the potential value of the rights on the market. The proportion placed of the total *value* of shares is only 14%, because most large issues are conventional rights issues with no placed shares.

Table 3 shows mean and median estimated rewards to buyers of placed shares. The sample consists of rights issues involving placed shares and all open offers, excluding issues at a premium of 5% or more or with a share consolidation. Buyers are rewarded by any placing fee for cash and by any discount to the TERP;[8] both are expressed in the table as a percentage of the offer price. A premium results in a negative value. A firm placing fee is often given explicitly in the prospectus, otherwise the fee is assumed to be the sub- underwriting fee in rights issues or the fee for placing with clawback in open offers. The value of the discount is halved in rights issues, which is appropriate for pre-renounced rights (though the cost of the discount in private placings accompanying rights issues is the full value of the *dis-to-TERP*). The average value of the total reward is 9.3% (median 7.2%) of _____

7. The number of rights taken up is normally reported at the close of rights issues and open offers. In rights issues the reported take-up includes subscriptions by buyers of rights in the market as well as by shareholders originally entitled to the rights, but in open offers the reported take-up is entirely by existing shareholders.

8. This assumes that the share price is expected to stay the same, except for the fall to allow for the scrip element on the ex-date. The CAAR on announcement and during the offer period is -18.6% in deep discount issues, -4.9% in rights issues and 1.8% in open offers (Tables 5 and 8). To the extent that changes in price are anticipated by issuers before the announcement, the figures overstate the anticipated value of the discount in deep discount and rights issues and understate it in open offers.

Table 3. Rewards for buyers of placed shares

The table shows estimates of the placing fee and *dis-to-TERP* expressed as a percentage of the offer price. The sample consists of rights issues with placed shares and all open offers, except for issues at a premium of 5% or more or with a share consolidation. If the prospectus records a separate 'firm placing' fee, this is the fee used, otherwise it is the fee for sub-underwriting in a rights issue or for 'placing with clawback' in an open offer, otherwise it is the fee paid to the arranger, less an assumed 0.75% retained by the arranger, or less 0.50% if a separate broker's fee is recorded. *Dis-to-TERP* is divided by two for rights issues. Total rewards = placing fee plus *dis-to-TERP*, if both are known.

	Total rewards (%)	**Placing fee (%)**	***Dis-to-TERP* (%)**
All issues			
Mean	9.26	1.10	8.25
Median	7.21	1.25	6.13
Standard deviation	*9.10*	*0.66*	*9.18*
N	698	711	748
Rights issues			
Mean	9.03	1.26	7.77
Median	7.76	1.50	6.33
Standard deviation	*6.16*	*0.57*	*6.20*
N	319	327	355
Open offers			
Mean	9.44	0.97	8.69
Median	6.63	1.25	5.81
Standard deviation	*10.98*	*0.71*	*11.20*
N	379	384	393

the offer price, over 80% of which is represented by the discount. The average discount is 8.3% (6.1%) and the average placing fee is 1.1% (1.3%). Almost all placing fees are between 0.5% and 2.5%; discounts are much more variable, but 92% of the issues with placed shares have a discount worth at least 1% of the offer price.With the rights issue *dis-to-TERP* divided by two, the rewards for buying placed shares are similar in rights issue and open offers. The figures in Table 3 do not apply to the buyers of rights sold in the market, who receive neither a placing fee nor a discount.

It is worth checking whether stand-alone private placings, not accompanied by a rights issue or open offer, are also made at a discount. As there is no existing UK evidence on pure private placings, a sample was collected by reading the reports on all issues categorised as 'placings' by Extel News Service during 1994-96. There is no prospectus, and little information is reported apart from the amount and the offer price. There were 172 pure placings by UK companies, excluding placings by investment trusts, of which 146 have the requisite data. If 172 is close to the full population, there were about 60 pure placings a year in the mid-1990s by UK companies, other than investment trusts, compared with around 200 rights issues and open offers a year. Since only one quarter of the latter 200 were pure rights issues, about 80% of UK seasoned offers were partly or wholly placed by the mid-90s. We measure the discount in relation to the market price at the close of the day before the announcement and to the average market price during the five trading days before the announcement, to allow for the possibility that the announcement may be a day or two later than when the placing was agreed. Three placings at a premium exceeding 5% are excluded so that the results are comparable with those for rights issues and open offers. The results, in Table 4, confirm that a large majority of pure placings are made at an appreciable discount in the UK, though it is somewhat less deep than the *dis-to-TERP* in open offers. The average discount to the market price the day before the announcement is 5.8% (median 4.0%); the figures using the five day average price are almost identical. The average *dis-to-TERP* in open offers is 8.7% (median 5.8%), which is significantly deeper (t = 3.6). 9.6% of the placings are at a premium, including the three excluded from the discount calculation.

5. Determinants of the discount

5.1 Risk of offer failure

This section examines how discounts are set. They are deep enough to be a substantial cost of issue in most open offers and most of the 42% of rights issues with placed shares. Previous research on the costs of seasoned offers has tended to concentrate either on the cash costs or on the change in market value on announcement. We start with the role of the discount in a conventional rights issue, which is to reduce the risk of offer failure. A relation between the discount and the volatility of the issuer's shares is predicted, and to investigate this, we use three measures of volatility; the market model beta and standard error estimated from daily returns during 80 days before and 80 days after the issue, and the share's beta at the time of the announcement as estimated by London Business School's *Risk Measurement*

Table 4. Discounts in pure private placings, 1994-96

Discounts are calculated in the same way as for rights issues and open offers. Any net dividend per share to which placed shares are not entitled is subtracted from the market price or average market price. Three placings at a premium of more than 5% on both measures are excluded.

Discount to market price at close of day before placing was announced	
Mean	5.77%
Median	3.98%
Standard deviation	*7.13%*
Proportion at a premium	9.6%
Discount to average market price during five days before placing was announced	
Mean	5.60%
Median	3.98%
Standard deviation	*7.06%*
Proportion at a premium	12.3%
Gross amount placed (£m)	
Mean	£13.8
Median	£2.3
Standard deviation	*£47.9*
N	143

Service, from monthly returns over 60 months, with Bayesian adjustments. We find that depth of discount is significantly related to standard error (*daily std error*) in both types of offer, but not to either measure of beta, which is consistent with Singh (1997). The results are not reported to save space.

5.2 Deep discounts and adjustment for anticipated change in share price

The discount measured using the market price or TERP immediately before the announcement may be a biased estimate of the discount expected after the announcement. It is plausible that in some cases the company and its advisers expect a change in the share price on announcement of the issue and of other information. For example, they may suspect that the prospectus, when published, will reveal that recent trading has been worse than investors were expecting, and they might adjust the offer price downwards in anticipation of a fall in the share price. It is possible that the discount itself is treated by investors as a signal; it may itself *affect* the market reaction. Either way, a negative relation is predicted between depth of discount and abnormal returns on announcement. However, most existing evidence is against this

prediction. Marsh (1977) for the UK, Tsangarakis (1996) for Greece and Bøhren et al (1997) for Norway find no relation between depth of discount and abnormal return on announcement, while Loderer & Zimmerman (1988) for Switzerland and Bigelli (1998) for Italy find a positive relation.[9] A deeper discount could be a positive sign because, for a given amount raised and assuming an unchanged or increased dividend per share, a deeper discount implies a higher dividend yield and larger total dividend post issue, which implies that the issuer is confident about paying more cash to shareholders.

In our sample, though, there is a significant negative relation between abnormal returns and discounts. Table 5 shows results of OLS regressions; the results are qualitatively similar using weighted least squares in which the abnormal returns are divided by their standard errors. The variable measuring the change in dividend yield, which is the same as that used by Bigelli (1998), has a negative coefficient. This is the opposite of that predicted by the increase-in-yield hypothesis, but is not surprising given that *div yld* has a correlation coefficient of 0.70 with *dis-to-mkt* and 0.50 with *dis-to-TERP*. Deeply discounted issues are associated with especially large falls in the share price. 127 rights issues and 47 open offers are made at a discount of 30% to the market price or deeper, hereafter referred to as a deep discount. In this sample, the CAAR is -8.3% on announcement and -10.4% during the offer period, with some recovery after the offer.[10]

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9. A test of the relation between abnormal returns on announcement and the depth of discount is not possible in US rights issues, because they are announced before the offer price is set and the offer period starts. Eckbo & Masulis (1992) find no relation between the discount and abnormal returns on the day the offer starts, while Singh (1997) reports a significantly negative relation between the discount and cumulative abnormal returns from the day before the start to six days after.

10. Abnormal returns are not adjusted for cash costs of issue or the cost to the issuer of privately placed shares at a discount. This is partly for consistency with most other event studies of seasoned offers, but mainly because there is no relation between abnormal returns and costs of issue, suggesting that the costs are not capitalised on announcement (Armitage, 1999).

Table 5. Abnormal returns and discounts

Abnormal returns are calculated as follows. For each offer a market model regression is run using daily data and dummy variables to distinguish sub-periods of interest:

$$R_{it} = \alpha_i + \beta_i R_{Mt} + \gamma_{1i} D_{1t} + \gamma_{2i} D_{2t} + \gamma_{3i} D_{3t} + \gamma_{4i} D_{4t} + e_{it}$$

where R_{it} = return on share i on day t; R_{Mt} = return on FT-Actuaries All Share Index on day t; D_{1t} = 1 for event days -1 to 0, and 0 otherwise, day 0 being the announcement day; D_{2t} = 1 for days +1 to C-2, day C being the close of the offer; D_{3t} = 1 for days C-1 to C, and D_{4t} = 1 for days C+1 to C+20. If a share goes ex-dividend during the event period, the net dividend per share is added to the ex-day price to calculate the return on that day. The combined estimation and event period is from 85 days before the announcement (day 0) to 100 days after the close of the offer (day C). The coefficient γ_i is a measure of the abnormal return for each day of the sub-period concerned. Days +1 to C-2 are referred to as the offer period, though in rights issues they incorporate the 'pre-offer' period between announcement and EGM, if there is one. The offer close, days C-1 to C, is separated out because trading in rights in a rights issue ceases two days before the closing date, at the end of day C-2 (MMC, 1999, p. 246). The cumulative abnormal return is γ_i times the number of days in the sub-period. γ_i can be averaged across the sample and the test statistic for the significance of the sub-period average γ_i is:

$$z = \sqrt{N}(\text{av}[\gamma_i / s_{\gamma i}])$$

where N is the number of offers in the sample and $s_{\gamma i}$ is the standard error of the γ_i coefficient for share i. z-statistics are in italics.

Panel A: Cumulative average abnormal returns in deep discount issues (30% to the market price or deeper)

	Announcement (days -1 to 0)	Offer period (+1 to C-2)	Offer close (C-1 to C)	Post offer (C+1 to C+20)
All issues	-8.29%	-10.35%	1.07%	7.51%
(N = 115)	*-16.35*	*-4.80*	*2.00*	*2.93*
% negative	72.2	69.6	42.6	40.0
Rights issues	-7.48%	-10.76%	1.40%	7.96%
(N = 92)	*-14.38*	*-4.36*	*2.29*	*2.97*
% negative	73.9	70.7	41.3	42.4
Open offers	-11.52%	-8.74%	-0.22%	5.73%
(N = 23)	*-7.79*	*-2.01*	*-0.11*	*0.62*
% negative	65.2	65.2	47.8	30.4

Panel B: Regression results

The dependent variable is the cumulative abnormal return (CAR_{it}) for the relevant event period. *Div yield* = ((mkt price/TERP) x (new DPS/previous DPS)) - 1. New DPS/previous DPS is assumed to equal one unless the prospectus contains a new DPS forecast. Companies not paying a dividend are excluded. *Rights issue* = one for a rights issue and zero otherwise. *t*-statistics are in italics.

	Announcement abnormal return					**Offer period abnormal return**				
	All issues	**All issues**	**All issues**	**Rights issues**	**Open offers**	**All issues**	**All issues**	**All issues**	**Rights issues**	**Open offers**
Model	**1.**	**2.**	**3.**	**4.**	**5.**	**1.**	**2.**	**3.**	**4.**	**5.**
Constant	0.044	0.040	0.040	0.020	0.047	0.026	0.022	0.022	0.023	0.028
	6.44	*5.78*	*5.45*	*2.60*	*2.43*	*2.68*	*2.24*	*2.08*	*1.97*	*2.56*
Dis-to-mkt	-0.234		-0.189	-0.219	-0.261	-0.261		-0.215	-0.251	-0.279
	-8.65		*-4.68*	*-6.44*	*-5.93*	*-6.61*		*-3.67*	*-5.07*	*-4.32*
Dis-to-TERP		-0.283					-0.318			
		-7.16					*-5.56*			
Div yield			-0.044					-0.046		
			-1.56					*-1.13*		
Rights issue	-0.020	-0.022	0.020			-0.001	-0.003	-0.002		
	-2.59	*-2.81*	*-2.35*			*-0.13*	*-0.26*	*-0.18*		
Adj R^2	9.9%	7.8%	9.8%	5.6%	10.7%	4.7%	3.5%	4.9%	3.5%	5.8%
F-value	53.9	41.7	31.6	41.4	35.1	24.9	18.4	15.4	25.7	18.7
N	967	966	854	680	287	962	961	850	676	286

Table 6. Evidence on deep discounts

Panel A: Reason for deep discount	**Number**	**%**
1. **Crisis**. The Chairman's letter states explicitly that the company will not survive or is unlikely to survive unless the issue proceeds.	56	32.2
2. **Distress**. The letter states or implies that the issue would not have been proposed were the company not in financial difficulty, but stops short of saying the company could not continue without the issue.	63	36.2
3. **Recent or current difficult trading**. There is no apparent reason for a deep discount except that the letter states that trading is or has recently been difficult.	22	12.6
4. **Risky use of proceeds**. The letter emphasises that the proceeds will be used in a speculative venture. These are either mining or technology companies.	5	2.9
5. **To dispense with cost of underwriting**. This reason is given in nine letters, but one of the companies is in category three and one in category four.	7	4.0
6. **Not known**. There is no reason for a deep discount discernible in the prospectus.	21	12.1
Total	174	100.0

Panel B: Event study results	**Announcement CAAR (%)**	**% negative**	**Offer period CAAR (%)**	**% negative**	**N**
Poor performers (categories 1-3)					
All issues	-10.29	72.4	-9.89	69.6	94
Rights issues	-9.82	75.3	-9.24	69.4	73
Open offers	-11.93	61.9	-12.23	70.0	21
Others (categories 4-6)					
All issues	0.67	71.4	-13.37	76.2	21
Rights issues	1.50	68.4	-17.07	79.0	19
Open offers	-7.23	100.0	21.78	50.0	2
Test statistics for difference (all issues)	*2.13,*[1] *0.13*[2]		*-0.56, 0.32*		

1. *t*-statistic for CAAR for all others less CAAR for all poor performers. 2. *p*-value of Wilcoxon's rank sum test.

To learn directly about the reasons for choosing a deep discount, we read the Chairman's letter to shareholders in the prospectuses of the deep discount issues. The Chairman's letter usually runs for several pages, describing the background to the issue and other major events in train. There are a number of standard headings including reasons for the issue, terms of the issue and current trading. It turns out that many letters do not explicitly discuss or even mention the fact that the issue is at an abnormally deep discount, but we infer the reason if possible, and the findings are shown in Table 6. 119 (68%) of the issuers were in serious trouble; either the company could not continue at all without an injection of new equity, or it was making the issue because there was an urgent need for funds due to poor performance. If the discount is referred to in these cases, it is always to say that the offer price is 'fair and reasonable' in the light of the poor performance. A further 22 (13%) of issuers had experienced some difficulty, though it is not certain that this was the reason for the issue or for the deep discount. Five (3%) were raising funds for investment in mining or technology projects, the speculative nature of which is emphasised in the letter. Only nine letters (5%) state that a reason for the deep discount is to avoid paying for underwriting by the arranger. There is no apparent reason in 21 (12%) of the letters.

Panel B of Table 6 shows announcement and offer period CAARs for sub-samples of poorly performing and healthy deep discount issuers. 115 of the deep discounts have usable event study data. The CAAR on announcement is -10.3% for the 81% of issues by poor performers compared with 0.7% for the deep discount issues by apparently healthy companies, though the proportion of negative abnormal returns is similar in both sub-samples. The much smaller reaction to deep discounts by healthy issuers suggests that most of the negative relation between depth of discount and abnormal returns is due to adjustment of the offer price for an expected fall in price on announcement.[11, 12] However, the offer period

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11. It is normally impossible to infer whether the company considers that information in the prospectus will cause investors' valuations to change. A remarkable exception is the letter presenting the placing and open offer by Harrington Kilbride plc dated 23 August 1995, which notes the Directors' opinions that 'the mid-market price... reflects market-makers' quotations for dealing in small quantities... [and not] the price at which investors would be prepared to invest further significant sums in the Company', and that 'despite recent announcements... the market price reflects optimism about the future under new management instead of the current and recent trading performance' (p. 9).

12. The expected impact of the announcement could in principle be inferred by comparing analysts' forecasts of earnings per share (EPS) before and after. Such a study would be awkward in practice. The results

would be sensitive to the adjustment for the scrip element and there are complicating events accompanying most issues, for example an acquisition or restructuring of debt.

CAARs are negative both for poor performers (-9.9%) and for healthy issuers (-13.4%). Possible explanations include release of negative information during the offer period, delayed reaction to the depth of discount, and price pressure due to sale of rights. Overall, the results in Tables 5 and 6 imply that some issuers do adjust offer prices for the anticipated market reaction on announcement, and that, in deeply discounted issues, the average *dis-to-TERP* considerably overstates the average anticipated reward for buyers of placed shares. The evidence is consistent with submissions by corporate financiers to the MMC (1999, p. 30) that deep-discounts are associated with a negative market reaction and are used for 'rescue' issues. Further research would be required to establish why there is no negative relation between discounts and abnormal returns in other markets.[13]

5.3 Discounts and liquidity

Existing shares can be sold through a broker at the market price, but when shares are placed, the price is usually several percentage points below the market price (Tables 3 and 4). We consider two possible reasons for the difference; the first relates to the size of offers and the second to costs of investing in the issuer. The value of a typical offer is very much larger than the value of a typical market trade; across our sample the proceeds exceed the average total value of shares traded in a day by 452 times on average (median 79 times). Issues are normally bought by many investors, but the size of the larger blocks purchased will still be much larger than the typical trade. UK market makers set limits to the size of trade for which their quotes are valid, and there is US evidence that unusually large sales can not be carried out at the market price. Holthausen et al (1987) find that secondary trades of medium sized blocks (average 1.70% of shares in issue) initiated by sellers are at a discount related to the size of the block. The block sale price is 2.46% lower on average than the price of the preceding trade, whereas the price of small, non-block sales is 1.13% lower on average than the preceding price. Mikkelson & Partch (1985) study somewhat larger, underwritten secondary sales. The offer price is the same as the market price in the majority of these

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13. For example, perhaps 'rescue' issues do not occur in these markets. There is also the question why Marsh (1977, pp. 411-2) finds no relation between discounts and abnormal returns in the UK. He measures the market reaction by the abnormal return during the month of the announcement, because a database of daily share returns did not exist at the time of his study. Any temporary price pressure during the offer period may have been obscured by a price rise before the announcement or recovery post offer. But there is probably a genuine difference in the results between his sample from 1962-75 and ours from 1985-96.

underwritten sales, but the authors find that underwriter spreads are related to the size of the placing as a proportion of the total shares, and suggest that this is evidence of limited liquidity. There may, therefore, be a relation between the discount and liquidity of the issuer's shares.

We measure liquidity by the average value traded on days when there is a trade (*ln(value traded)*) and by the *bid-ask spread*, and we measure the offer size in relation to liquidity by *ln(proceeds/value traded)*. If liquidity is a factor in setting the discount, depth of discount will be positively related to *bid-ask spread* and to *ln(proceeds/value traded)*, and negatively related to *ln(value traded)*. The days on which there is a trade and the value of shares traded on those days are measured over 300 trading days starting 20 days after the offer close. A post-offer measurement period is used to maximise the sample size; trading data only becomes available from mid-1993 for most companies. Bid and ask prices are extracted from Datastream for five working days starting one month preceding the offer announcement (they are not available from Extel). The bid-ask spread for each day is calculated as

$$\frac{\text{(Offer price - bid price)}}{\text{(Offer price + bid price)/2}}$$

and the figure used is the average spread over the five days. Unfortunately, many companies could not be found on Datastream, presumably because they have been delisted. This probably results in selection bias towards larger and more successful companies.

In unreported regressions of *dis-to-mkt* or *dis-to-TERP* on a single liquidity measure, each measure has the sign expected and is significant at the 1% level, with the coefficient on *bid-ask spread* being much the most significant. However, the three measures are correlated with each other, and in regressions with all three as explanatory variables, only *bid-ask spread* is significant. It should be noted that *bid-ask spread* is not merely a measure of liquidity: it is also a non-negligible cost of trading; the average spread in our sample is 5.5% (median 1.4%). Buyers of placed shares lose half the spread when they sell; they pay the offer price but only receive the bid price. Buyers of rights lose half the spread on the shares plus half the spread on the rights, which they buy at the ask price. A positive relation between depth of discount and *bid-ask spread* could therefore indicate that issuers compensate investors for the spread. Since the univariate relations between the discount and *ln(value traded)* and *ln(proceeds/value traded)* appear to be due to their correlation with *bid-ask spread*, the evidence is ambiguous

on whether the discount is related to liquidity or whether it reflects compensation for the spread.

5.4 Discounts and investigation costs

A second explanation for the discount in placed shares is that it compensates buyers for costs of investing in an issuer of new equity. We follow Hertzel & Smith (1993) in testing for costs of investigating the issuer. Other possible costs of investment include the bid-ask spread, costs of rebalancing the portfolio (Hansen, 1988) and, for investors acquiring or increasing a large shareholding, costs to be incurred in monitoring and advising the company (Wruck, 1989). We use two of Hertzel & Smith's proxies for investigation costs; market capitalisation divided by shareholder's funds (*mkt-to-book*), and a dummy variable which equals one if the issuer has negative interest cover in the two financial years preceding the issue, and zero otherwise (*financial distress*). The argument for *mkt-to-book* is that it is more costly to value intangible assets than tangible assets; the argument for *financial distress* is that investigation costs will be higher if the issuer is in difficulty.[14] We also include the natural log of the issuer's market capitalisation (*ln(mkt cap)*), since there is less public information about smaller listed companies. To cope with extremely low or negative book values, issuers with a *mkt-to-book* figure of more than 20 times, or with a negative book value, are given a figure of 20. The sample in these tests is limited to issues after 1 July 1991, for which the accounting data required for *mkt-to-book* and *financial distress* could be obtained from scanned prospectuses in Extel. Unreported regressions indicate that all three of the proxies for investigation costs have explanatory power.

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14. Other variables which Hertzel & Smith find to be significantly related to the discount in private placings are the number of shares as a percentage of the total number post issue (fraction placed; positive relation), the placing proceeds (negative), a dummy variable for placings of shares which can not be sold within two years (positive) and a dummy for placings to a single purchaser (negative; at least 30 of their 106 placings are predominantly to one buyer). The last two variables are not applicable to our sample. The fraction placed proxies for the greater cost of investigating the value of new equity than existing equity, but it is not clear a priori why this should be related to discount, and the relation is not significant in all of Hertzel & Smith's regressions. The discount rewards the buyer of each share; why should investigation costs *per share* be expected to increase with the fraction placed? Placing proceeds proxies for economies of scale in investigation, but since larger issues in our sample are placed with more investors, no relation need be expected between proceeds and discounts.

5.5 Multivariate regression

Several variables have been identified which, considered separately, explain some of the variation in discounts. We now regress *dis-to-mkt* and *dis-to-TERP* on all the variables: *daily std error*; the abnormal return on announcement (*announcement AR*); *bid-ask spread*; *financial distress*; *mkt-to-book*; *ln(mkt cap)*; and a dummy variable which equals one for a rights issue and zero for an open offer (*rights issue*). *Announcement AR* proxies for the change in price expected by companies on announcement of the issue and associated news. *Rights issue* is included because the discount is a smaller cost in rights issues. It is not a cost at all in the 58% of rights issues without any placed shares, and the cost of a given *dis-to-TERP* is half as much in the case of pre-renounced rights as it is in an open offer or private placing. Also the risk of offer failure would be expected to matter more in rights issues, since the market for rights can only operate if the rights have a value. Data limitations restrict the sample to 348 rights issues and 167 open offers.

The results are in Table 7. For the full sample, all the variables have the sign expected and are significant at the 5% level or better except *ln(mkt cap)*. Much the most significant variable is *rights issue*, suggesting that the greater cost of the discount in open offers, and greater concern about the risk of offer failure in rights issues, have a major impact on the choice of discount. The results for the two types of offer are difficult to compare because, although the regressions explain more of the variation in discounts across open offers (adjusted R^2 = 48% compared with 40% for the rights issue sample), the coefficients for the open offer sample are mostly less significant, after adjusting for heteroscedasticity. The greater significance of *daily std error* in rights issues is consistent with greater concern about offer failure. One might have expected discounts to be more sensitive to variations in investigation costs in open offers, given that all involve placed shares, but only one of the three proxies for investigation costs, *financial distress*, is more significant in the open offer sample. In summary, discounts are related to the volatility of the issuer's shares, especially in rights issues, to anticipated changes in price on announcement, and to costs of investing in the issuer.

Table 7. Determinants of discounts

Daily std error = standard error from a market model regression estimated using daily returns during 80 days before and 80 days after a period starting five days before the announcement and ending 20 days after the offer close; *announcement AR* = abnormal return on issuer's shares on announcement; *bid-ask spread* = mean of (ask price - bid price)/((ask price + bid price)/2) measured over five days one month before the announcement date (source of bid and ask prices: Datastream); *mkt-to-book* = market capitalisation of issuer the day before the announcement divided by the most recent value of shareholders' funds in the prospectus (if the ratio exceeds 20, or shareholders' funds are negative, *mkt-to-book* is set at 20); *financial distress* = one if the issuer's interest cover is less than one in the two consecutive accounting years preceding the announcement, and zero otherwise; *ln(mkt cap)* = natural log of the issuer's market capitalisation; *rights issue* = one for a rights issue and zero otherwise. *t*-statistics, in italics, are calculated using White's correction for heteroscedasticity. The expected sign of the coefficient is in brackets.

	All issues		**Rights issues**		**Open offers**	
	Dis-to-mkt	*Dis-to-TERP*	*Dis-to-mkt*	*Dis-to-TERP*	*Dis-to-mkt*	*Dis-to-TERP*
Constant	0.068	-0.028	0.108	0.007	0.102	-0.007
	1.37	*-0.99*	*1.72*	*0.13*	*1.67*	*-0.22*
Daily std error	2.280	1.799	2.700	1.935	2.088	2.054
(+)	*3.14*	*3.77*	*3.31*	*3.40*	*1.51*	*2.22*
Announcement AR	-0.399	-0.284	-0.409	-0.310	-0.393	-0.216
(-)	*-3.45*	*-3.96*	*-3.01*	*-3.27*	*-1.89*	*-2.28*
Bid-ask spread	0.448	0.290	0.659	0.422	0.247	0.116
(+)	*2.29*	*2.13*	*2.72*	*1.81*	*0.84*	*0.68*
Mkt-to-book	0.003	0.003	0.003	0.003	0.003	0.002
(+)	*2.53*	*2.78*	*1.99*	*2.25*	*1.40*	*1.33*
Financial distress	0.042	0.011	0.025	-0.003	0.071	0.039
(+)	*2.48*	*0.98*	*1.25*	*-0.21*	*2.32*	*2.44*
Ln(mkt cap)	-0.006	0.003	-0.001	0.006	-0.008	0.002
(-)	*-1.30*	*1.41*	*-0.20*	*1.43*	*-1.35*	*0.56*
Rights issue	0.104	0.072				
(+)	*10.14*	*9.84*				
Adj R^2	47.7%	42.0%	39.9%	28.0%	46.8%	47.2%
F-value	67.8	54.0	39.1	23.3	25.0	25.4
N	515	515	348	348	167	167

6. Implications for choice of issue method

6.1 A problem with rights issues

The extent of placing at a discount which we have documented shows that it is common for buyers of new shares to be rewarded, unless they are existing shareholders taking up their entitlements. But rights issues are not designed to reward buyers of rights sold on the market. The only way buyers can extract a reward is by paying less than the difference between the TERP and the offer price, assuming that the TERP estimates the 'true' value of the shares ex-rights. If the rights are trading for less than this difference, the share price must fall to prevent arbitrage, and should recover after the offer (the Appendix provides a numerical example). But the price may not fall, because if it does the shares should attract buyers anticipating a rise in price after the offer closes, in which case would-be buyers of rights will simply be unable to obtain a reward. If buyers of rights *are* rewarded, we would expect (i) a negative abnormal return during rights issues, followed by a positive abnormal return once trading in rights ends, and (ii) an absence of this pattern in open offers. The US evidence on (i) is mixed (Eckbo & Masulis, 1992; Hansen, 1988; Singh, 1997). Temporary price pressure may be easier to identify in the UK because the period from announcement to offer close is shorter (US rights issues are announced about one month before the start of the offer period).

The event study results for issues in aggregate, reported in Table 8, appear to support predictions (i) and (ii). There is a pattern in rights issues of a temporary price fall with some recovery after rights cease trading, and this pattern is not found in open offers. The CAAR on announcement and during the offer is -2.20% and -2.70% respectively for rights issues and 2.04% and -0.20% for open offers.[15] The combined CAAR for offer close plus the 20 days post offer is 3.07% in rights issues and 2.15% in open offers. The differences between the CAARs for the two types of offer are significant at the 1% level for the announcement period, offer period and offer close. There is also some evidence of price reversal in rights issues for individual shares; the correlation coefficient between cumulative abnormal returns for

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15. The more negative market reaction on announcement of rights issues has also been found by Burton et al (1999) and Suzuki (1997). The reaction to rights issues appears to have become more negative over time. Marsh (1979) reports an average change in price of -0.6% on announcement day for rights issues during 1962-75, when all issues were rights issues; Levis (1995) reports a two day announcement abnormal return of -1.33% for rights issues during 1982-91.

Table 8. Cumulative average abnormal returns

See Table 5 for method of estimation.

	Announcement (days -1 to 0)	Offer period (+1 to C-2)	Offer close (C-1 to C)	Post offer (C+1 to C+20)
All issues	-0.93%	-1.95%	0.56%	2.01%
(N = 1,010)	*-9.47*	*-4.86*	*6.58*	*7.16*
% negative	58.1	57.8	45.1	44.3
Rights issues	-2.20%	-2.70%	0.77%	2.30%
(N = 704)	*-22.68*	*-7.09*	*7.46*	*6.58*
% negative	68.0	60.1	41.8	44.2
Open offers	1.99%	-0.20%	0.08%	1.35%
(N = 306)	*17.19*	*1.93*[1]	*0.64*	*3.03*
% negative	35.3	52.6	52.6	44.4
Test stats for difference between offer type	*5.59,*[2] *0.00*[3]	*2.39, 0.00*	*-2.92, 0.00*	*-0.79, 0.46*

1. A CAAR and its *z*-statistic can differ in sign because the abnormal returns are not equally weighted in arriving at the *z*-statistic. 2. *t*-statistic for open offer CAAR less rights issue CAAR. 3. *p*-value of Wilcoxon's rank sum test.large sales of rights are anticipated.

announcement- plus-offer and for close-plus-post-offer is -0.09 (t = -2.34) in rights issues but 0.13 (t = 2.35) in open offers. However, there are two qualifications. First, much of the difference between the results for the two types of offer on announcement and during the offer is associated with the deeper discount in rights issues (Table 4), although the discount might be related to anticipated sales of rights. Second, part of the difference between the reactions to the two types of offer is due to the significant *positive* reaction to open offers. This may be because investors view an open offer as more like a private placing than a rights issue, and treat the fact that there are investors willing to buy the shares as a positive signal. Wruck (1989) and Hertzel & Smith (1993) report a positive average abnormal return on announcement of private placings in the USA. Thus the evidence regarding price pressure during rights issues is inconclusive, and even if buyers of rights do benefit from temporarily depressed prices in some issues, the benefit is highly uncertain ex ante.

6.2 Growth of open offers

Our primary explanation for the growth of open offers is that buyers of shares not subscribed for by existing shareholders often require a reward, and it is much easier to provide this via an open offer than via a rights issue. If non-subscribers always believed they would be able to sell their rights in a rights issue at a price equal to the difference between the TERP and the offer price, they would never prefer an open offer at a discount, and never pre-renounce shares in a rights issue. Yet in open offers at a discount, an average of 49% of the shares offered pro rata to existing holders are not taken up by them, and 28% of rights issues at a discount have pre-renounced shares. The implication is clearly that sale of rights on the market would be very difficult. It is true that rights can be placed in a rights issue if they are pre-renounced. But there is no point in having a rights issue if non-subscribers forego the opportunity to sell rights on the market. Furthermore, a *dis-to-TERP* approaching twice as deep as in an open offer is required to provide buyers of pre-renounced shares in a rights issue with the same reward (see Appendix), and there are various reasons why a deeper discount may be unwelcome. First, in the large minority of rights issues involving placed shares, there is an obvious incentive to minimise the discount (this does not seem to have been noted before as a problem with deep discount rights issues.) Second, since deep discounts are associated with a negative market reaction in the UK, a healthy company might be concerned that a deep discount would be misinterpreted. Third, a deeper discount can imply larger capital gains tax liabilities for some individual sellers of rights (MMC, 1999, p. 31). Fourth, there may be 'misunderstandings and misplaced concerns' regarding discounts, as Marsh (1994, p. 38) believes.

The discussion implies that the comparative advantage of an open offer is positively related to the proportion of the new shares which will not be taken up by existing shareholders and to the costs of investing in the issuer. The evidence supports both predictions. We see from Table 2 that a higher proportion of open offers have shares which are pre-renounced or privately placed, and that the average proportion pre-renounced or privately placed is higher than in rights issues. These differences are significant at the 1% level. At the same time, companies choosing open offers are comparatively expensive to invest in (Table 9). The mean *bid-ask spread* and *mkt-to-book*, and the proportion of issues in *financial distress*, are significantly higher in open offers, and the mean *mkt cap* is significantly smaller.

Table 9. Comparison between rights issues and open offers: proxies for costs of investment in the issuer

The sample is restricted to issues after 1 January 1990, since before then open offers had not become established. See Table 7 for definitions.

	Rights issues	**Open offers**	**Test statistics for difference**
Bid-ask spread			
Mean	4.7%	7.6%	*4.32,*[1] *0.00*[2]
Median	2.6%	4.5%	
N	452	209	
Mkt-to-book			
Mean	490%	594%	*2.45,0.01*
Median	231%	287%	
N	588	380	
Mkt cap (September 1996 £m)			
Mean	£214.5	£15.0	*-9.80, 0.00*
Median	£44.0	£6.5	
N	735	427	
Proportion in *financial distress*	20.2%	29.6%	*2.99*[1]
N	510	311	

1. *t*-statistic for open offer mean or proportion less rights issue mean or proportion. 2. *p*-value of Wilcoxon's rank sum test.

Given that new investors need to be rewarded, it might be asked why open offers were only introduced in the late 1980s. One possibility is that the number of issues in which large shareholders were unwilling or unable to take up their rights had been increasing. Marsh (1977, p. 39) notes that 'virtually all' seasoned offers were rights issues during 1962-75. His sample includes all 1,128 rights issues by UK companies during this period, and of these only 13 involved pre-renounced shares and none was accompanied by a private placing for cash. It was 'fairly common practice' to consult with and pre-sell shares to *existing* shareholders before the public announcement, but Marsh makes no mention of placing with new investors.

6.3 Comment on the disappearance of rights in the USA

Our evidence gives new support to the view that the main advantage of firm commitments over rights issues lies in the placing or bookbuilding process. The benefits of placing have to date been regarded as fairly modest. Hansen (1988) notes that selling rights involves brokerage fees, a bid-ask spread on the rights, and capital gains tax for some sellers; Eckbo & Masulis (1992, p. 312) refer to 'issuer-borne rights distribution costs'. Such transactions costs are avoided by placing shares. On the positive side, Hanson suggests that the placing process reduces the costs of finding buyers and reduces portfolio adjustment costs incurred by buyers. It might be added that the process enables investors to obtain private information through the issuer's advisers and to gain direct access to the company, for example via a presentations. The placing process may thereby reduce investigation costs. However, we argue that this list omits the biggest benefit of placing, which is that it enables buyers to be rewarded. The paper has documented the common use of placing and the size of rewards to buyers of placed shares, which can be observed in the UK. The substantial rewards to investors in most US private placings can also be observed, but private placings of equity are rare (Hertzel & Smith, 1993, Table 2). US firm commitment offers are made at negligible discounts (Loderer et al, 1991), and there appears to be no issue-by-issue evidence on the proportion of the underwriter's spread which is passed on to investors. But it would be reasonable to expect the rewards obtained by investors in firm commitments to be of the same order as those obtained by buyers of placed shares in equivalent issues in the UK.[16] If so, US rights issues will have suffered the same disadvantage as we have highlighted in UK rights issues.

Debate about the benefit of placing has revolved around whether there is temporary price pressure during rights issues. Hansen (1988) presents evidence of price reversal, which he argues reflects a price concession on sale of rights. His findings have not been confirmed by Eckbo & Masulis (1992) or Singh (1997), and the evidence in this paper regarding temporary price pressure in UK rights issues is inconclusive (Section 6.1). But doubt about the existence of price pressure need not imply that buyers of rights require little _____

16. It is conventional to view 60% of the spread as a selling fee (Hansen & Torregrosa, 1992); presumably some or all of this is passed on to investors. US underwriter spreads are about one third higher than the cash costs of issue in the UK (Armitage, 2000), probably because spreads include rewards to investors which in the UK are provided mainly via offer price discounts.

compensation. On the contrary, the doubt confirms that it is difficult for buyers of rights to extract a reward, and helps explain why some issuers opt for open offers, or firm commitments in the USA. We have shown that the open offer method tends to be used for those issues in which we would expect sales of rights to be most problematic, ie for issues with a relatively low contribution from existing shareholders and relatively high costs of investing in the issuer.

7. Conclusion

The use of placing at a substantial discount is much more commonplace than may previously have been realised, especially in issues by smaller listed companies. The view that the typical seasoned offer in the UK is a conventional rights issue, in which the discount is unimportant, needs to be revised. The costs of seasoned offers have hitherto been seen as the cash costs of issue plus any abnormal fall in the issuer's market value on announcement of the offer. Our evidence indicates that a third type of cost is material in many issues, which is the reward necessary to attract new investors, provided mainly through offering placed shares at a discount. It is noteworthy that the placing process in seasoned offers is similar to that in initial public offers, and that new investors IPOs also tend to be rewarded through underpricing of the new shares.

The analysis of determinants of the discount offers some support for the theory that discounts compensate new investors for costs of investing in the issuer, though we have not attempted to show that costs of investment explain the whole of the discounts observed in placed shares. Comparisons between companies choosing rights issues and companies choosing open offers suggest that the open offer method, together with private placing, is used in situations in which it is important to reward new investors. Companies choosing open offers are relatively small and costly to invest in, and a large proportion of the shares are not subscribed for by existing shareholders, implying that they are unwilling or unable to supply the company with the new equity it seeks. The rights issue mechanism for bringing in new investors is sale of rights on the market, but it does not enable buyers of rights to be rewarded. We have argued that open offers and private placings have come to be preferred primarily because it is straightforward to reward the buyers of placed shares.

Appendix: numerical example of rewarding new investors in an open offer and in a rights issue

Suppose the existing share price is 100p, there are one million shares in issue and it is proposed to make a one-for-one *open offer*. The company's advisers believe that a discount to the TERP representing 10% of the offer price will be needed to secure buyers of shares not subscribed for by those entitled to them. The offer price (P_{offer}) can then be calculated as follows:

$$P_{offer} = TERP/1.1 = [100p(0.5) + P_{offer}(0.5)]/1.1$$

$$\therefore \quad P_{offer} = 50p/(0.6) = 83.33p,$$

the TERP is 100p(0.5) + 83.33p(0.5) = 91.67p and the *dis-to-TERP* is 9.1%. The amount raised is £833,333. Assuming that the market price of the shares ex-rights is equal to the TERP, a non-subscribing shareholder with 100 shares suffers a loss of wealth of 100 x 8.33p = £8.33.

Alternatively, the company could choose a *rights issue*. In the open offer, investors will only buy shares not taken up at a discount representing a fee of 10% per pound of new investment, and we assume it is the same in the rights issue. If there are pre-renounced shares, the terms must be set so that the discount to the TERP is 20% of the offer price. The buyers would pay 10% for the rights, leaving them with a reward of 10%, as in an open offer. The offer price will be lower than 83.33p, and more shares will be issued to raise the same amount. Solving the simultaneous equations

$$P_{offer} = TERP/1.2 = [100p(1m/(1m+N)) + P_{offer}(N/(1m+N))]/1.2$$

and $$P_{offer}(N) = £833,333m,$$

gives an offer price of 69.44p and 1.2m new shares (= N). The new TERP is (100p x 0.4545) + (69.44p x 0.5455) = 83.33p, and the *dis-to-TERP* is 16.7%. For buyers of rights in the market to obtain a 10% reward, the market price must fall temporarily during the offer by 10% of the offer price, that is by 6.94p to 76.39p ex-rights, and then recover to 83.33p. If the share price does not fall to this extent, or does not recover fully, buyers of rights in the market are not as well rewarded as buyers of pre-renounced rights or as placees in an equivalent open offer. Our non-subscribing shareholder sells his rights for 76.39p - 69.44p = 6.95p each, which means he receives 120 x 6.95p = £8.34, and his 100 shares are worth £83.33 after the offer. His wealth declines by £8.33, as in the open offer.

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